

Claims

1. A circuit board comprising a resin plate formed by a three-dimensional mold of an electrically insulating synthetic resin; and a circuit pattern formed by a metal foil and placed on said resin plate.

2. The circuit board according to claim 1, wherein said circuit pattern is formed by at least one foil circuit punched out of a metal foil into a given pattern, said foil circuit being fixed onto said resin plate.

3. The circuit board according to claim 2, wherein said circuit pattern includes a plurality of pin receiving holes into which anchor pins extending from the resin plate are inserted to fix said circuit pattern onto the resin plate.

4. The circuit board according claim 1, wherein said resin plate has at least one recess formed in a rear surface thereof, and both ends of a jumper wire held in said recess are connected to said circuit pattern.

5. The circuit board according to claim 2, wherein said circuit pattern is formed by a plurality of metal foils which are stacked on said resin plate.

6. A circuit board comprising a resin plate formed by a three-dimensional mold of an electrically insulating synthetic resin; a circuit pattern formed by at least one foil circuit punched out of a metal foil into a given pattern and placed on said resin plate; and a plurality of reception terminals provided in a plurality of terminal receiving holes formed in said resin plate such that said reception terminals are connected to said circuit pattern.

7. The circuit board according to claim 6, wherein said

reception terminal includes a tab portion which is welded to said circuit pattern.

8. A circuit board comprising a resin plate formed by a three-dimensional mold of an electrically insulating synthetic resin; a circuit pattern formed by at least one foil circuit punched out of a metal foil into a given pattern and placed on said resin plate; and a plurality of tubular reception terminals clamped in a plurality of terminal receiving holes formed in said resin plate; whereby said metal foil of the circuit pattern has formed therein a plurality of cut portions at positions corresponding to said terminal receiving holes such that a plurality of connection terminals can be inserted into said reception terminals through said cut portions.

9. The circuit board according to claim 8, wherein inserting ends of said connection terminals are inserted into said reception terminals through said cut portions formed in said metal foil to electrically connect said metal foil to said insertion terminals.

10. The circuit board according to claim 8 or 9, wherein said cut portions are formed as a cross-wire cut.

11. A method of manufacturing a circuit board comprising a resin plate formed by a three-dimensional mold of an electrically insulating synthetic resin and a circuit pattern placed on said resin plate, comprising:

punching said circuit pattern out of a metal foil into a given pattern by means of Thompson blades;

holding said circuit pattern between said Thompson blades;

transporting said circuit pattern onto said resin plate;

and

fixing said circuit pattern to said resin plate.

12. The method according to claim 11, wherein said circuit pattern is held between the Thompson blades by air suction nozzles provided between successive Thompson blades.

13. The method according to claim 11, wherein said circuit pattern is placed onto said resin plate by air blowing portions provided between successive Thompson blades.

14. The method according to claim 11, wherein said circuit pattern is placed onto said resin plate by a plurality of pin-shaped pushing rods provided between successive Thompson blades.

15. A joint box comprising:

a stack of circuit boards each of which includes a resin plate formed by a three-dimensional mold of an electrically insulating synthetic resin and a circuit pattern formed by at least one foil circuit punched out of a metal foil into a given pattern and placed on said resin plate;

a plurality of terminal receiving holes commonly formed in the stacked circuit boards;

a plurality of tubular metal reception terminals each of which includes a tab portion and is provided in a terminal receiving hole formed in a given layer circuit board of said stack, said tab portion being connected to a circuit pattern of the relevant circuit board; and

a plurality of insertion terminals including pin-shaped inserting ends inserted into said terminal receiving holes such that the insertion terminals are connected to said reception terminals to establish electrically connection between said circuit patterns of the circuit boards.

16. The joint box according to claim 15, wherein said tab portions of the reception terminals are connected to said circuit patterns by welding.

17. A joint box comprising:

a stack of circuit boards each of which includes a resin plate formed by a three-dimensional mold of an electrically insulating synthetic resin and a circuit pattern formed by at least one foil circuit punched out of a metal foil into a given pattern and placed on said resin plate;

a plurality of terminal receiving holes commonly formed in resin plates of the stacked circuit boards;

a plurality of cut portions formed in said circuit patterns;

a plurality of tubular metal reception terminals provided in said terminal receiving holes formed in given layer circuit boards; and

a plurality of insertion terminals having pin-shaped inserting ends inserted into said terminal receiving holes through said cut portions such that the insertion terminals are connected to said reception terminals to establish electrically connection between said circuit patterns of the circuit boards.

18. The joint box according to claim 15 or 17, wherein said circuit boards include protrusions and depressions and are stacked by clamping corresponding protrusions and depressions one another.

19. The joint box according to claim 15 or 17, wherein one end of said insertion terminal constitutes said pin-shaped inserting end and the other end constitutes a connecting terminal having such a shape that another connecting terminal is clamped into said connecting terminal.

20. The joint box according to claim 19, wherein said inserting end has a rectangular cross section.

21. The joint box according to claim 19, wherein said insertion terminals are secured to at least one block body made of electrically insulating synthetic resin by fixing middle portions of the insertion terminals between the inserting ends and connecting ends to fitting holes formed in said block body, and said block body is placed on one surface of the stack of circuit boards to insert simultaneously said inserting ends of the insertion terminals into said terminal receiving holes formed in the circuit boards.

22. The joint box according to claim 21, wherein a plurality of anchor pins are provided on a bottom surface of said block body and are inserted into pin receiving holes formed in the stack of circuit boards, and the circuit boards in the stack are fixed to one another by fusing end portions of the anchor pins extending from the other surface of the stack of circuit boards.